# Technical Sheet

X3
**High Performance Long Plug**

The X3 plugs in Ø8 and Ø10 mm versions in combination with countersunk / hexagon head screws are approved for multiple fixings in concrete and masonry.








## Features

### Material

**Plug: nylon**
**Screw: white zinc plated steel**

### Benefits

- Extraordinary performance on all base materials.
- Up to 3 embedment depths
- Extreme versatility and significant reduction in installation time.
- Increased expansion
- Designed for facades and heavy carpentry.

## Applications

### Applications

- Ventilated facades
- Steel carpentry
- Wood carpentry

### Suitable for

**Non-cracked concrete**
**Solid brick**
**Honeycomb brick**

- Cell like clay brick
- Lightweight honeycomb brick
- Hollow dense aggregate block
- Hollow light aggregate block
- Aerated concrete
- Solid stone

# Technical Sheet

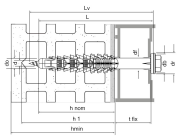
X3
**High Performance Long Plug**

# Technical Data

## Product Dimension - Countersunk PZ Screw

| Reference | Nylon fixings dimensions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Info product | | | | | | | | | Tun / DB nr. | NOB nr. |
| | Product Reference | Plug[mm] | Screw[mm] | Reduced fixture thickness [$tf_{ix}$][mm] | Standard fixture thickness [$tf_{ix}$][mm] | Max fixture thickness[mm] | Bit | Qty per box[pcs] | Qty per outer box[mm] | | |
| 64601B0810000 | X3 | 8x100 | 6x108 | 60 | 50 | - | PZ3 | 50.0 | 500.0 | - | - |

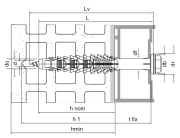
*(1) Only for aerated concrete*
** Not covered by CE certification*



## Product Dimensions Countersunk TX Screw

| Reference | Nylon fixings dimensions | | | | | | | | | Nylon fixings Installation data |
|---|---|---|---|---|---|---|---|---|---|---|
| | Info product | | | | | | | | | Installation data |
| | Product Reference | Plug[mm] | Screw[mm] | Reduced fixture thickness [$tf_{ix}$][mm] | Standard fixture thickness [$tf_{ix}$][mm] | Max fixture thickness[mm] | Bit | Qty per box[pcs] | Qty per outer box[mm] | Ø drilling fixture[mm] |

*Only for aerated concrete
NOTE: The thickness of the plaster must be included in the fixing thickness $t_{fix}$



## Product Dimensions Hex-head Screw

| Reference | Nylon fixings dimensions | | | | | | | | | | | Nylon fixings Installation data |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Info product | | | | | | | | | | | Installation data |
| | Product Reference | Plug[mm] | Screw[mm] | Reduced fixture thickness [$tf_{ix}$] [mm] | Standard fixture thickness [$tf_{ix}$] [mm] | Max fixture thickness[mm] | Bit | Wrench size[mm] | Built-in washer | Qty per box[pcs] | Qty per outer box[mm] | Ø drilling fixture[mm] |

* Only for aerated concrete
NOTE: The thickness of the plaster must be included in the fixing thickness $t_{fix}$

# Technical Sheet

X3
## High Performance Long Plug



### Product Dimensions Large Rim Plug with Hex-head screw

| Reference | Nylon fixings dimensions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Info product | | | | | | | | | | |
| | Product Reference | Plug[mm] | Screw[mm] | Reduced fixture thickness [$tf_{ix}$][mm] | Standard fixture thickness [$tf_{ix}$][mm] | Max fixture thickness[mm] | Bit | Wrench size[mm] | Built-in washer | Qty per box[pcs] | Qty per outer box[mm] |

*Only for aerated concrete
NOTE: The thickness of the plaster must be included in the fixing thickness $t_{fix}$

### Design capacities - single anchor - no edge distances

| Reference | Nylon fixings Loads | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Design capacities - single anchor - no edge distances | | | | | | | | | |
| | Design capacity | | | | | | | | | |
| | Bending moment - MRd[Nm] | Tension - NRd (1)[kN] | | | | Shear - VRd (1-2)[kN] | | | | |
| | | Non-cracked concrete C12/15[kN] | Non-cracked concrete C16/20[kN] | Autoclaved aerated concrete AAC[kN] | Solid brick[kN] | Non-cracked concrete C12/15[kN] | Non-cracked concrete C16/20[kN] | Autoclaved aerated concrete AAC[kN] | Solid brick[kN] | |

1. The design loads loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s). The loading figures are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).
*Not covered by ETA-11/0080

# Technical Sheet

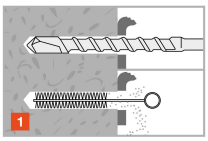
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## High Performance Long Plug

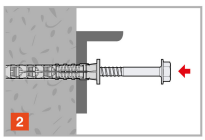
### Recommended capacities - single anchor - no edge distances

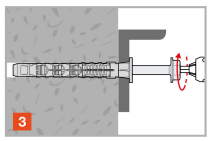
| Reference | Nylon fixings Loads | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Design capacities - single anchor - no edge distances | | | | | | | | |
| | Design capacity | | | | | | | | |
| | Bending moment - MRd[Nm] | Tension - NRd (1)[kN] | | | | Shear - VRd (1-2)[kN] | | | |
| | | Non-cracked concrete C12/15[kN] | Non-cracked concrete C16/20[kN] | Autoclaved aerated concrete AAC[kN] | Solid brick[kN] | Non-cracked concrete C12/15[kN] | Non-cracked concrete C16/20[kN] | Autoclaved aerated concrete AAC[kN] | Solid brick[kN] |

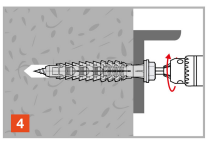
1. The recommended loads have been calculated using the partial safety factors for resistances stated in ETA-approval(s) and with a partial safety factor for actions of γF=1.4. The loading figures
are valid for unreinforced concrete and reinforced concrete with a rebar spacing s ≥ 15 cm (any diameter) or with a rebar spacing s ≥ 10 cm, if the rebar diameter is 10 mm or smaller.
2. The figures for shear are based on a single anchor without influence of concrete edges. For anchorages close to edges (c ≤ max [10 hef; 60d]) the concrete edge failure shall be checked per
ETAG 001, Annex C, design method A.
3. Concrete is considered non-cracked when the tensile stress within the concrete is\sigmaL +\sigmaR ≤ 0. In the absence of detailed verification\sigmaR = 3 N/mm² can be assumed (\sigmaL equals the tensile stress within the concrete induced by external loads, anchors loads included).

# Installation




## Spacings and edge distances

| Reference | Nylon fixings dimensions | Nylon fixings Installa |
|---|---|---|
| | Info product | Spacings and edge d |
| | Product Reference | 2/15 |
| | | stic / m] |
| | | Minimun thickness of support[mm] |
| | | Mir dista |

* Not included ir

**Spacings and edge distances**
See full table online ➡️

## Installation data

| Reference | Nylon fixings Installation data | | |
|---|---|---|---|
| | Installation data | | |
| | Ø drilling hole[mm] | Min. drill depth[mm] | Ø drilling fixture[mm] |


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